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# CHANGES IN CENSUS METHODS FOR THE CENSUS OF 1910

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It would be quite impossible within any reasonable limits of time to give a general description of the methods which will be employed in taking the coming census. So far as those methods are the same as have hitherto been employed, a description of them would be of little interest to the members of this association, most of whom are already thoroughly familiar with past censuses. This paper is, therefore, confined substantially to the differences between the methods which are being or are to be employed in the present census, and those of past censuses.

We believe, of course, that the changes which are to be made will prove advantageous; but one can hold this opinion without in any way disparaging the work of prior censuses. In part the changes proposed are necessary adaptations to actual changes in conditions of our national life. Many of the changes, moreover, are based on recommendations of former Census Directors or of other men whose experience at prior censuses has taught them where the defects lay.

Those changes in census methods which may have a bearing upon the scientific value of the statistics may be grouped under three main heads; namely, those which relate (1) to methods of selecting those employees who collect the statistics; (2) to the scope of the inquiries and the forms of schedules; and (3) to methods of analysis and interpretation. Only as to the first two are plans sufficiently developed to permit any statement of value.

## EXAMINATION OF CANDIDATES FOR APPOINTMENT

The value of census work depends primarily upon the intelligence, industry, and integrity of those who collect the statistics in the field. It is, at best, exceedingly difficult to secure competent persons to do the census field-work, because of the very limited duration of the employment which can be offered.

One innovation at the present census looking toward the selection of more competent field employees was an open competitive examination for the special agents who collect the statistics of manufactures, mines, and quarries. This examination was of a practical character, consisting in part of evidence regarding the candidate's education and experience, and in part of the filling-out, from the description of a hypothetical manufacturing concern, of a schedule corresponding to that which the special agents will actually use in the field. In this connection it may be noted that we expect at the present census to specialize to some extent the work of the manufacturing agents, confining one set to one class of establishments and another set to another. This, however, can be done within reasonable limits of expense only in a few large industrial centers. There will also be a more or less complete segregation of the work on mines and quarries from that on manufactures. Even this limited degree of specialization will, it is believed, serve to increase the efficiency of the field-work on these subjects.

In the second place, we are undertaking at the present census to exercise somewhat greater care in the examination of candidates for the position of enumerator of population and agriculture than was exercised in 1900. In that year every candidate for the position of enumerator was required to take a written test, consisting of the filling-out of a sample population schedule from a description of a number of typical families and individuals. The form of the test was satisfactory, and substantially the same will be used at the present census, with the addition of a test on the agricultural schedule in rural districts. In 1900, however, no precaution, other than the candidate's own statement, was taken to prevent him from securing assistance in preparing his test paper. The blanks were sent to the candidates at their homes, and they could fill them out at their leisure without any supervision. At the present census we propose to assemble the candidates at numerous convenient places throughout the country and require them to prepare the test paper in the presence of examiners.

This examination, although open to everyone, is not strictly

competitive. There are many important qualifications for an enumerator which cannot be tested in this way, and which the supervisors must not only be permitted, but must be directed, to take into account in selecting those whom they recommend to the Director for appointment. Doubtless some of the supervisors will take advantage of the discretion which is allowed them, to prefer one candidate over another for political or personal reasons. The supervisors, however, will be required actually to grade the papers of all the candidates, and will be furnished a guide by which they can do so rapidly and accurately. Moreover, they will be required, at the time they make their recommendations, to transmit the papers of all the candidates to the Census Bureau, which will review the rating of the papers of those recommended, and of such others as the Bureau may see fit to examine. It is believed that the result of these requirements will be that most supervisors will pay due regard to the relative excellence of the test papers in making their selections.

#### GENERAL CHANGES IN SCOPE OF ENUMERATORS' WORK

The experience of the past has clearly demonstrated the danger of burdening the enumerators and field agents with too much detail, and of requiring from them the exercise of too high a degree of judgment. We have, therefore, aimed, so far as the constantly increasing complexities of American economic and social life would permit, to reduce the number of schedules and to simplify the schedules and the instructions. On the other hand, it has been found necessary in a few respects to add to the schedules with a view to bringing out certain fundamental facts or distinctions which have hitherto been ignored, or which have only in recent years become of importance.

The work of the enumerators has been simplified by the action of Congress itself in relieving them of the schedule of vital statistics, which was used in 1900. The census work regarding vital statistics is now confined, as everyone knows that it should be, to collecting and publishing the results of the registration systems of individual states and cities. It will be recalled that at the census of 1890 the enumerators were required to cover many

subjects which were not called for in 1900; and it follows that the work of the enumerator will be far narrower in its scope in 1910 than it was in 1890.

The work of the enumerators at the present census is, in fact, in most cases confined to the use of three schedules—the general population schedule, the general farm schedule, and the schedule of live stock not on farms and ranges, the last named being very simple and of minor importance. In some districts where the number of manufacturing and mining establishments is too small to justify the employment of special agents, the enumerators will also collect statistics for such establishments; and in the southern states, as more fully set forth later, they will probably use the plantation schedule in addition to the general farm schedule.

#### CHANGES IN POPULATION SCHEDULE

Some important changes have been made, in the instructions for filling the population schedule, with regard to the question who should and who should not be enumerated in a given locality. The most serious difficulty confronting enumerators is that of determining the “usual place of abode,” which is, by law, the basis of the enumeration. Much confusion could be avoided by adopting the usual European custom of enumerating every person where he is actually present on the census day, instead of where he “belongs” or has his usual home. It would not be feasible to describe, even in brief terms, the changes in the instructions on this point; but suffice it to say that, without in any way lengthening them, they have been, I am convinced, made much clearer, and conform more closely to the proper principles.

Another change regarding the population schedule, while in a way apparently slight, will, it is hoped, be of much value in improving our statistics as to families and the fecundity of marriages. The schedule of 1900 asked, as to each woman, how many children she had borne during her lifetime and how many were now living, but there was no way of telling how many of these children were the fruit of a single marriage. The difficulty arose from the fact that the only information regarding a

woman's marital relation was contained in the entry, "single," "married," "widowed," or "divorced," together with the number of years of her present marriage. The number of children reported might have been the fruit of a single marriage or of two, three, or even more successive marriages. With a view to securing information with regard to the relation between the number of years of marriage and the number of children, we at first contemplated changing the schedule so as to call only for the number of children by the present marriage. This, however, would have cut out a great deal of information regarding the children of women widowed or divorced, as well as regarding the children of those married more than once. A simple solution of the difficulty was finally devised; namely, to ascertain, in the case of each woman now in the married state, whether it is the first or a subsequent marriage. It will be possible, therefore, to select all women now in their first marriage relation, ascertain the number of years of that marriage, and present for such women the number of children borne and the number now living; and these statistics will relate to a sufficiently large proportion of the population to give a correct view as to the relation between duration of marriage and number of children. At the same time, of course, statistics can be presented showing the number of children which each woman has borne, whether she be now widowed or divorced, or whether married once or more than once.

A very important change has been made in the population schedule with reference to the return of occupations. At the last census only a single column was devoted to the return of occupations, and the result was that in many cases the designation was not sufficiently clear to permit a close determination of the industrial distribution of the inhabitants. At the present census there are three interrogatories relating to occupation; namely: (1) Trade or profession of, or particular kind of work done by, this person (illustrated by such examples as *spinner*, *salesman*, *laborer*, etc.); (2) General nature of industry, business, or establishment in which this person works (illustrated by such examples as *cotton mill*, *department store*, *street work*, etc.); (3) Whether an employer, employee, or working on own account.

This change will not only permit a more precise definition of occupations, but it will also be possible to group those gainfully occupied in two different ways: first, according to the profession, trade, or craft which they themselves pursue; and second, according to the industry or business with which they are connected. Thus, a blacksmith may be employed in a village shop or in a railroad machine-shop or in a shipyard. Under the old schedule, if all blacksmiths were reported as such, the ship-building industry or the railroad business would not be credited with its full number of employees; whereas, on the other hand, if the blacksmith were reported merely as a railroad-shop worker or a shipyard worker, the total number pursuing this particular craft was not shown. The new question distinguishing employers from employees and from those working on their own account, although it involves some difficulties and will probably not result in strictly accurate returns in certain cases, will nevertheless throw much-needed light upon the actual industrial status of the people of the country.

In this connection also, attention may be called to the changes in the instructions with regard to reporting the gainful occupations of children. The widespread agitation as to child labor makes it desirable that the statistics on this subject should be placed on a more scientific basis than has been done in past censuses. Important as it is that the abuses of child labor should be done away with, it is nevertheless essential that the extent of child labor in this country should not be exaggerated. The danger of such exaggeration arises principally in connection with those children who work for their own parents. A very large proportion of the children of the country, and particularly of the children of farmers, are employed more or less of the time outside of school hours and during school vacations in assisting their parents on the farm, in the shop or store, or in housework. To distinguish between those whose employment in such a way is sufficiently extensive to justify reporting them as having a gainful occupation, and those whose work is too unimportant or discontinuous to justify classifying them as gainful workers, is very difficult. It seemed desirable to adopt a somewhat arbitrary

rule and to instruct enumerators to report children who work for their parents as gainfully occupied only in case they work for at least half of the year. This instruction may possibly result in reducing the number of children reported as gainfully occupied, though this is by no means certain; but it seems far better to have a definite basis for classification than to leave it, under vague instructions, to the variable judgment of enumerators.

I may also note that in the case of children who work for their parents on farms, which is perhaps the most common form of child labor, we will instruct the enumerators to designate them as "farm laborers, home farm," in order to distinguish them from those who work for other employers, who will be designated as "working out."

The last change in the population schedule which calls for mention is the insertion of the question, as required by the new Census Act: "Whether out of work on April 15, 1910." This new question is in addition to the question, "Number of weeks out of work during the preceding year," which corresponds to the old question, "Number of months unemployed," the substitution of the words "out of work" for "unemployed" being designed to emphasize what we consider the proper meaning of the inquiry. It cannot be hoped that any very considerable degree of accuracy will be secured in the replies to either of these questions, as it is obviously difficult to define the phrase "out of work." Our instructions are that persons are to be reported as out of work only where they want work and cannot find it, and that persons who are sick, on strike, or voluntarily idle are not to be reported as out of work. Of course, it would be interesting to know also how many working people are out on strike at the time of the census, or how long they were out of employment because of strikes during 1909. It would be interesting, too, to have some information as to the loss of earning power through sickness. To combine, however, all forms of unemployment in one return, without distinguishing the causes, which would be impracticable, would obscure the answer to the question which, after all, interests the greatest number of people; namely, how far work is lacking for those who are willing and able to work.



## CHANGES IN THE AGRICULTURAL SCHEDULE

The schedule of agriculture looks somewhat appalling to the uninitiated, and scarcely less so to the fully initiated. Its many questions are, however, due to the complexity of American agriculture; and it is difficult to see how any considerable condensation could be made without sacrificing important information. In fact, it is only with the greatest difficulty that the Census Bureau is able to resist the pressure to elaborate the schedule still further. Experts in the Department of Agriculture, for example, interested in noting the progress in the cultivation of new products and their adaptation to local conditions, constantly urge an increase in the number of items; associations of live-stock breeders call for more detail regarding farm animals; fruit-growers for more detail regarding fruits, etc. The best that we have been able to do is to classify the questions more systematically under large groups, with conspicuous headings, and to simplify the phraseology and the instructions regarding them. The classification into groups will enable the enumerator in many cases to pass over a number of the groups which do not apply to the agricultural conditions in his section of the country.

The most important change planned with respect to the census of agriculture relates particularly to the conditions in the southern states. Much of the land in the southern states is held in large plantations, but is operated, principally by negroes, in small tracts under a lease system. At the census of 1900 the only unit recognized was the so-called "farm," and the land operated by each tenant was treated as a separate farm. In other words, no recognition was given to the plantation as an agricultural unit. As a matter of fact, many, though not all, of the southern plantations are actual economic units, and the tenants who work on them are practically farm laborers employed by the plantation owner, although each is assigned a definite portion of land and is compensated by a share of the crop instead of by cash wages. On many plantations the tenants own no farm animals or farm implements, and work quite as much under the direction of the plantation-owner as hired farm hands in the North work under the direction of the farm-owner. There are, however, many

other cases in which the owner of a tract of land, sometimes still called a plantation, has divided it up into what may properly be called separate farms, which are leased out to tenants who furnish their own farm animals and implements and who work almost, if not entirely, in independence of any control by the owner of the land. In these cases it is proper enough to regard the tenant farm as the agricultural unit; but in the case of the other type of plantations it is necessary to recognize the plantation as the unit, at least for certain purposes. To liken the negro "cropper" of the South on his bit of land to the independent farmer operating a rented farm in the North is entirely to obscure the true agricultural, economic, and social conditions. It attributes to negro farm laborers an independence which many of them have, unfortunately, not as yet attained. Moreover, at the census of 1900 much duplication of land and of crops occurred by reason of the fact that one enumerator would return the entire plantation of a given owner while another enumerator would return the same land on the schedules for the several tenants, and it required much work in the office to eliminate these duplications.

It is probable that the difficulty will be attacked at the present census by preparing a special schedule to be filled by the plantation owner or his manager, while at the same time retaining separate schedules for the individual tenants. These two sets of schedules will be so adjusted to each other as to make it comparatively easy to eliminate duplications. The attempt will be made also to distinguish as clearly as possible between those cases where the negro tenant is practically a farm laborer supervised by the plantation-owner, and those cases where he is largely or wholly independent of such control and supervision. An approximately correct distinction of this character can apparently be made, even in the absence of other data, from the form of the rental contract itself. It appears that ordinarily, where the tenant pays half of the crop as his rental, he is practically a farm laborer under supervision; while usually those tenants are practically independent who pay as rent either a given amount of cash or of cotton, or a share less than one-half (one-fourth the

cotton and one-third the corn being a common arrangement of this character).

Another important change in the farm schedule is designed to enable the Census Bureau as nearly as possible to eliminate duplications in the value of farm products. It is practically useless, in view of the fact that most farmers do not keep accurate book-keeping accounts, to ask the farmer directly what is the total net value of his product for the year. The only practicable way is to ask him the quantity and value of each crop or product which he has raised. The farmer who raises a given number of bushels of corn and tons of hay and feeds them all or in part to his own live stock will, therefore, duplicate in so far the value of his products, reporting both the value of the corn and hay and the value of the live stock sold or slaughtered. At the census of 1900 the attempt was made to eliminate this duplication in some measure by asking as one question the value of all products of the farm enumerated which had been fed on that farm to animals or poultry. This value was deducted from the sum of the gross values of the several individual products to give the net value. This plan involved the obvious difficulty that the farmer had in most cases no accurate knowledge of the quantity or value of his products which he had fed to his own live stock. Moreover, even this deduction did not give the true net value of the farmer's product, for it took no account of the fact that he might have purchased feed from other farmers for his live stock.

At the present census, in order to permit the elimination of these duplications, we shall ask, in the first place, the amount spent by the farmer for hay, grain, and other produce (not raised on his own farm) for use as feed for domestic animals and poultry, and also the amount spent for the purchase of domestic animals. In the second place, instead of asking directly what products raised by the farmer himself were fed to his live stock and poultry, we shall ask the quantity and value of his sales of products adapted to feed of stock, such as corn, oats, hay, and the like, the difference between the quantity sold and the quantity produced, which is also asked, representing substantially the amount consumed on the farm. In the case of those crops, such

as wheat, which are not adapted for feeding to animals, we shall ask simply the quantity produced and its value, and treat the entire amount as a direct net product of the farm. By adding, therefore, the value of those crops which are produced exclusively for sale, the value of animals sold and slaughtered, and the value of the sales of such crops as are adapted for the feed of animals, and deducting from this total the value of feed and animals purchased, the net value of the product of the farm is secured. These changes involve additional questions on the schedule, but they are absolutely essential to getting the true net value of the product.

Another change of some importance in the farm schedule consists in the attempt to ascertain the quantity of woodland on farms, and to distinguish pasture land of different classes. At the census of 1900 the only distinction made as to the types of land was that between improved and unimproved land. At the present census we shall, in one inquiry, distinguish (1) improved land; (2) woodland whose principal value is in the forest products; and (3) all other unimproved land; and shall in another inquiry ask regarding pasture land, distinguishing it into three classes: (1) woodland pasture containing more or less scattered timber but not properly classified as woodland; (2) improved land in pasture; and (3) all other pasture land. Those interested in forestry, as well as those interested in the grazing industry, consider these changes essential to the proper classification of the farm lands of the country.

#### CHANGES IN THE MANUFACTURES AND MINING SCHEDULES

It is possible to get more accurate returns of the manufacturing industries than of agriculture, because most manufacturers keep book accounts. The same is true to a large extent of mining. We shall endeavor to impress upon the special agents who collect statistics of manufactures and mines the necessity of securing actual bookkeeping figures wherever they exist. With a view to making this possible within the available limits of time, we have very materially reduced the inquiries in the manufactures schedule. The number of inquiries eliminated is small, but those

eliminated are the ones which it required the most time to answer correctly from the books. The fact is that it was quite impossible for the ordinary special agent, at the censuses of 1900 and 1905, to fill the schedules completely from actual bookkeeping figures within the limit of time which he was allowed. He was practically forced to resort to estimates with respect to certain of the questions, and this naturally tempted him to accept estimates for other questions which could have been more readily answered from actual bookkeeping data.

These condensations in the manufactures schedule are principally in the following three respects :

1. At the censuses of 1900 and 1905 the schedule called for the average number of men, the average number of women, and the average number of children under 16 employed during each month of the year. In the office these monthly averages were combined to give the annual average. Inasmuch as pay-rolls do not distinguish age and do not in all cases distinguish sex, the mere segregation by age and sex involved great difficulty and practically necessitated estimates. Moreover, to obtain the average number of employees in any single month would have required the examination of all the pay-rolls for that month, giving regard to the number of days on which each person was employed, and adjusting the cases where a single pay-roll extended from one month into another. All this was quite impossible in any reasonable length of time. At the present census we are asking for the distinction between men, women, and children only for one single date in the year. The distribution as between men, women, and children for that date will be assumed, as it safely can, to be fairly typical of the distribution for the year as a whole. With a view to ascertaining the annual average number of employees of all classes combined, we ask, not the average number for each month, but the number employed on the fifteenth day of each month. The average for these twelve days will give substantially the same result as an average calculated from twelve monthly averages ; and the data can be obtained from the actual pay-rolls in but a small fraction of the time which would have been required to calculate monthly averages.

2. We have eliminated entirely the question calling for the number of employees classified according to their rates of wages or earnings. This was done with much regret, for correct information showing how many employees in the country as a whole, or in a given state, or in a given industry, obtain specified rates of wages would be the most valuable possible form of wage-statistics. We were forced to the conclusion, however, that the amount of labor involved in getting this information correctly from actual pay-rolls would be prohibitive in view of our limited appropriations. There is every reason to believe that at prior censuses the information in most cases was not taken from actual records, but was based on more or less inaccurate estimates of the operator of the factory.

3. At the censuses of 1900 and 1905 the schedule called for a distinction between those materials consumed which were strictly raw materials and those which were partly manufactured. This distinction was intended to permit the calculation of the so-called net value of manufactures by deducting from the gross combined value of the product of manufacturing establishments the value of those materials which represented the product of some other manufacturing establishment. As was pointed out in the text of the report of 1900, however, it is not possible to make use of this system of eliminating duplications except with regard to the country as a whole. When applied to individual states or cities or to individual industries, it loses all significance. The books of manufacturing establishments ordinarily do not directly segregate the cost of raw materials proper from that of partly manufactured materials, and the special agent was in most cases forced either to accept estimates of the value of the two classes of materials or to work through a maze of details of separate purchases in order to segregate the one class from the other. It has seemed to us that the value of the information secured did not justify the encouragement of the practice of making estimates, which was bound to extend from the separate classes of materials to the totals. At the present census, therefore, the only distinction which is made with respect to raw materials is that between fuel and other kinds of materials. It

seems to us that the fairest measure of the contribution that manufactures make to the wealth of the country, and the fairest comparison between different states or localities and different industries with respect to their significance in manufacturing, are secured, not by deducting from the gross value of the product the value of partly finished materials, but by deducting the value of all materials. We propose to show this net value of product generally throughout the presentation of the statistics, in addition to the gross value.

Changes have been made in the general mining schedule similar to those in the manufactures schedule. The special schedules for leading individual manufacturing and mining industries have also, in most cases, been materially condensed and simplified.

#### METHOD OF PRESENTING STATISTICS

It would be inappropriate at the present time to discuss the exceedingly tentative plans which we have in mind with respect to the method of tabulating and publishing the statistics of the census of 1910. In a general way it may be said that it seems desirable that the statistics should be published in a larger number of small volumes instead of a small number of very bulky volumes. It will perhaps be possible to separate the text and analytical tables from the general and detailed tables, and also to a greater extent to publish the material regarding separate subjects in separate volumes. We hope to be able to present an analysis of the statistics of families, which was not done at the census of 1900, and in certain other directions to present and discuss the statistics more fully than was done at that time.